

What is claimed is:

1. An obstetrical imaging system, comprising:

an optical imaging system configured to be mounted on a user's hand, the optical

5 imaging system having smoothly tapered proximal and distal ends for ease of insertion

and removal of the miniaturized video camera in a body cavity of a patient;

an illumination subsystem configured to provide light in the visual field of the

optical imaging system; and

a display monitor for displaying images from the optical imaging system.

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2. The obstetrical imaging system of claim 1, wherein the optical imaging system

comprises a miniaturized video camera.

3. The obstetrical imaging system of claim 1, wherein the optical imaging system

15 is mounted on a ring configured to attach the optical imaging system to one or more

fingers of the user's hand.

4. The obstetrical imaging system of claim 1, wherein the optical imaging system

is equipped with a panoramic lens for imaging a large portion of the interior of the

20 patient's body cavity.

5. An obstetrical imaging and fetal extraction system, comprising:

a vacuum-gripping cup configured for connection to a vacuum source;

an optical imaging system configured to view an area distal to the vacuum-gripping cup; and

an illumination subsystem configured to provide light in the visual field of the optical imaging system.

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6. The obstetrical imaging and fetal extraction system of claim 5, wherein the optical imaging system comprises a miniaturized video camera.

7. The obstetrical imaging and fetal extraction system of claim 5, wherein the  
10 illumination subsystem is configured to direct light through tissue within the visual field of the optical imaging system.

8. The obstetrical imaging and fetal extraction system of claim 7, wherein the  
illumination subsystem is configured to emit light from a distal rim of the vacuum-  
15 gripping cup.

9. The obstetrical imaging and fetal extraction system of claim 5, wherein the  
optical imaging system is configured to view an area within the interior of the vacuum-  
gripping cup.

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10. The obstetrical imaging and fetal extraction system of claim 5, further comprising a fetal scalp electrode mounted on a distal rim of the vacuum-gripping cup.

11. The obstetrical imaging and fetal extraction system of claim 5, further comprising a tension meter for measuring tension applied to the vacuum-gripping cup.

12. The obstetrical imaging and fetal extraction system of claim 11, further  
5 comprising an audible alarm for indicating when a predetermined level of tension has been reached.

13. The obstetrical imaging and fetal extraction system of claim 5, further comprising an adjustable drag mechanism for limiting tension applied to the vacuum-  
10 gripping cup.

14. The obstetrical imaging and fetal extraction system of claim 5, wherein the vacuum-gripping cup is configured with a plurality of vacuum chambers with independently controllable vacuum levels.

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15. An obstetrical imaging system, comprising:  
an optical imaging system mounted on an elongated shaft configured for insertion into a body cavity of a patient; and  
a transparent inflatable balloon mounted on the elongated shaft surrounding the  
20 optical imaging system.

16. The obstetrical imaging system of claim 15, wherein the optical imaging system comprises a miniaturized video camera.

17. The obstetrical imaging system of claim 15, wherein the elongated shaft is rigid.

5           18. The obstetrical imaging system of claim 15, wherein the elongated shaft is flexible.

10           19. The obstetrical imaging system of claim 15, wherein the elongated shaft is articulable.

10           20. The obstetrical imaging system of claim 15, wherein the optical imaging system is equipped with a panoramic lens for imaging a large portion of the interior of the patient's body cavity.